ABSTRACT OF THE DISCLOSURE

A broadband optical spectrum generating apparatus 20 includes an ultra-short pulse fiber laser 22 that generates pulsed light having a pulse width in a unit of picosecond to femtosecond, and a broadband optical spectrum-generating optical fiber 24 that is connected with the ultra-short pulse fiber laser 22 via a lens 26 and has a non-linear coefficient of not less than 10 [$W^{-1}m^{-1}$] at a wavelength of the pulsed light and a magnitude of chromatic dispersion of not greater than 2 [ps/km/nm]. The pulsed light emitted from the ultra-short pulse fiber laser 22 is converted into a relatively flat super continuum over a broad band of approximately 1200 nm to 2000 nm by chromatic dispersion in the course of transmission through the broadband optical spectrum-generating optical fiber 24.